

9/8/16

"Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time." -Thomas Edison

HW: Finish "Simplifying Radicals" w/s

AIM: How do we simplify radicals?

Warm Up:

Let's create a list of perfect squares.

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144,  
169

When simplifying radicals it is very important to pay attention to the index of the radical.

A radical is in simplest form when:

index tells what root we want.

1. The radicand (the quantity under the radical) has no factors that have a power greater than the index.
2. No fractions are underneath the radical.
3. No radicals are in the denominator.

$$\sqrt[3]{8} = 2$$

(=2 because  $2 \cdot 2 \cdot 2 = 8$ )

### ORAL EXERCISES

State the two square roots of each number.

1. 25

$$\pm 5$$

2. 4

$$\pm 2$$

3. 9

$$\pm 3$$

4. 64

$$\pm 8$$

5. 100

$$\pm 10$$

6. 36

$$\pm 6$$

$$\sqrt{\frac{16}{25}} = \frac{\sqrt{16}}{\sqrt{25}} = \frac{4}{5}$$

State the only + value principal square root.

7. 25

$$5$$

8. 49

$$7$$

9.  $\frac{1}{4}$

$$\frac{1}{2}$$

10.  $\frac{1}{81}$

$$\frac{1}{9}$$

11.  $\frac{1}{100}$

$$\frac{1}{10}$$

12.  $\frac{16}{25}$

$$\frac{4}{5}$$

Find the indicated square root.

13.  $\sqrt{100}$

$$10$$

14.  $-\sqrt{49}$

$$-7$$

15.  $-\sqrt{36}$

$$-6$$

16.  $\sqrt{121}$

$$11$$

17.  $\sqrt{\frac{1}{16}}$

$$\frac{1}{4}$$

18.  $-\sqrt{\frac{25}{36}}$

$$-\frac{5}{6}$$

## 9/8/16 Simplifying Radicals



principal root (positive only)



negative root (negative only)



both roots (positive AND negative)

True or false?

19. 20 is a perfect square.

F

20. 100 is a perfect square. T

21.  $\sqrt{(-3)^2} = -3$  F

22. In  $\sqrt{64}$  the radicand is 64.

T

23.  $\sqrt{49}$  indicates only one square root of 49.

T

24. 0 has no square root. T  $(0)(0)=0$

$$2. \sqrt{625} = \boxed{25}$$

Try calculator!

$$4. -\sqrt{484} = -22$$

$$6. \sqrt{441} = 21$$

$$8. -\sqrt{400} = -20$$

$$10. -\sqrt{2025} = \boxed{-45}$$

$$12. \sqrt{2401} = \boxed{49}$$

$$14. \sqrt{1024} = \boxed{32}$$

$$16. -\sqrt{3600} = \boxed{-60}$$

$$18. -\sqrt{529} = \boxed{-23}$$

$$20. \sqrt{\frac{64}{121}} = \boxed{\frac{8}{11}}$$

$$\sqrt{12} = \boxed{2\sqrt{3}}$$

$\sqrt{4} \quad \sqrt{3}$   
 $2\sqrt{3}$

$$\sqrt{18} = \boxed{3\sqrt{2}}$$

$\sqrt{9} \quad \sqrt{2}$   
 $3\sqrt{2}$

Hint:  
 $y = \frac{\#}{x}$   
Look AT  
TABLE

$$\sqrt{48} = \boxed{4\sqrt{3}}$$

$\sqrt{16} \quad \sqrt{3}$   
 $4\sqrt{3}$

$$\sqrt{8} = \boxed{2\sqrt{2}}$$

$\sqrt{4} \quad \sqrt{2}$   
 $2\sqrt{2}$

$$\sqrt{32} = \boxed{\phantom{000}}$$

$$\sqrt{75} = \boxed{\phantom{000}}$$